Journal of Developmental Origins of Health and Disease

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In This Issue

This issue of The Journal of Developmental Origins of Health and Disease contains 11 original manuscripts. Notably, J DOHaD is now transitioning to continuous publication in which articles will be published as they are accepted. We will continue to have themed issues and themed collections for which we will notify our readership.

In this Issue

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Original Articles

Involuntary tobacco smoke exposure from conception to 18 years increase midlife cardiometabolic disease risk: A 40-year longitudinal study. Niu et al examine results from the collaborative perinatal project to assess the impact of in utero and early-life tobacco smoke exposure. Lifetime risk of hypertension increased with second trimester exposure to maternal smoking exposure in utero, childhood and adolescence. Further risks of diabetes were increased with smoking exposure, with associations stronger in males than females. These findings indicate that early life exposure to tobacco smoke increases midlife risk of hypertension and diabetes.

The impact of maternal and paternal birth weights on infant birth weights: The Japan Environment and Children's Study. Tomita and coauthors examine the association between parental and infant birth weights among the Japanese birth cohort. Parental birth weight was found to be associated with infant birth weight even after adjusting for parental factors. Expectantly, maternal birth weight was more strongly associated with infant birth weight than was paternal birth weight.

Maternal pea fiber supplementation to a high-calorie diet in obese pregnancies protects male offspring from metabolic dysfunction in adulthood. Andreani and colleagues assess the influence of maternal yellow-pea fiber supplementation in Sprague-Dawley rats randomized to control or high-calorie obesogenic diets. Among offspring of dams fed the obesogenic diet, maternal pea fiber supplementation improved glycemic control in males, though not in female offspring. These findings indicate that supplementation of a high-calorie diet with pea fiber pre-pregnant and throughout pregnancy and lactation may protect male offspring from metabolic dysfunction.

Association of birth weight with diabetes, hypertension and ischemic heart disease in young adulthood: A retrospective cohort study. Yoshida-Montezuma and coauthors assess the relationship between birth weight and diabetes, hypertension and ischemic heart disease using a cohort study of singletons from Ontario, Canada. Birth weight was associated with diabetes in young adults in a reverse J-shape, and inversely with hypertension. These findings are consistent with prior literature demonstrating the complex association of birth weight with diabetes and hypertension.

Empirical evidence of predictive adaptative response in humans: A systematic review and meta-analysis of migrant populations. Lopez et al assess migrant populations from low- and middle- to high-income countries to examine the impact of predictive adaptative responses. The results demonstrate that adult migrants experience higher prevalence of diabetes than populations at destination and there was an increase in obesity in children migrants. These findings suggest empirical evidence consistent with predictive adaptive-type responses.

Associations of offspring birth weight and placental weight with subsequent parental coronary heart disease: Survival regression using the Walker cohort. Sanchez-Soriano et al utilize the Walker cohort from Scotland (1950s-1960s). The authors identify negative associations between offspring birth weight and both maternal and paternal coronary heart disease risk. These results provide evidence for intergenerational associations between early growth and parental coronary heart disease.

A systematic review exploring evidence for adolescent understanding of concepts related to the developmental origins of health and disease. Tohi and coauthors perform a systematic review examining literature focusing on adolescent understanding of DOHaD concepts. Their assessment of individual level awareness, interpersonal communication and health literacy highlight the need to develop strategic approaches to increase DOHaD education and subsequent awareness to adolescents.

Human milk polyunsaturated fatty acids are related to neurodevelopmental, anthropometric and allergic outcomes in early life: A systematic review. Mitguard et al explore the relation of omega-3 and omega-6 fatty acids in human milk with offspring neurodevelopment, body composition and allergies. The results consistently suggest better outcomes for infants consuming milk with higher concentrations of omega-3, DHA, EPA and ALA, whereas negative outcomes were associated with higher levels of omega-6 fatty acids. These results may be important for baby nutrition, product development and dietary recommendations for mothers.

Association between vitamin levels and obesity in the National Health and Nutrition Examination surveys 2017-2018. Lu and Sun utilize the NHANES results to examine

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association of vitamin exposure with obesity risk. Vitamin A, C and D levels were significantly higher among non-obesity compared to obesity groups. The authors conclude that reduced levels of vitamin A, C and D increase the risk of obesity and suggest that vitamin supplementation may reduce obesity risk by suppressing inflammatory responses.

Maternal prenatal and postnatal psychological distress trajectories and impact on cognitive development in four-year-old children: The Japan Environment and Children's Study. Nishigori and coauthors use the Japan Environment and Children's Study data set to examine association between maternal psychological distress and infant's cognitive development. The results demonstrate that persistent maternal psychological distress from the first half of pregnancy to one year postpartum had an adverse impact on verbal cognitive development in boys, but not in girls, at 4 years of age.

Supplementation of the maternal diet with Brazil nut (*Bertholletia excelsa* H.B.K.) prevents cognitive impairment in the offspring of obese mothers. Apolinano and colleagues examine the supplementation of Brazil nuts in female rats fed a high-fat diet. Offspring of maternal high-fat group exhibited impaired short-term and long-term memory which was prevented by Brazil nut supplementation. The authors suggest that Brazil nut maternal diet supplementation may prevent cognitive impairment in offspring and may be related to selenium levels.

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